

***Anisops platycnemis* Fieb.**

Head rather large, with prominent eyes, notocephalic lateral margins slightly diverging from synthlipsis and again converging toward the vertex; to the naked eye, the notocephalon appears of equal width throughout. Pronotum overlapping base of head somewhat pointedly, and terminating in a point at the meeting of the hemelytra. Metanotum completely covered by the hemelytra. Hemelytra pearly, lustrous, varying in color when closed from pure white through a bluish to a blackish tinge, in this respect resembling strongly the shadings of mother-of-pearl. Alar nervures pale; Ake hyaline. Abdominis dorsum varying from testaceous base and blackish tip to nearly entirely black. Venter black. Pedes testaceous. Long. 6.7-8.1 mm.; lat. 2-2.3 mm.

This species I have taken only in Staten Island with Mr. Davis, where we found it in large numbers in a rock hole in an abandoned trap-rock quarry, on October 25. Its slim, long shape was seen at different depths with its long sweep-like hind legs ready for a swift stroke, floating motionlessly among the algæ. We took a large number of specimens on this occasion and a subsequent one.

This species can be readily distinguished from the local species of the genus *Notonecta* by its rather long and slender shape, its narrow notocephalon with parallel sides separating the large eyes; and by the beautiful pearly luster of the hemelytra, which vary from a pure white to a blackish tinge, according to the color of the dorsum abdominis.

NOTES ON THE CICINDELIDÆ OF THE PINE BARRENS OF NEW JERSEY.

BY CHARLES W. LENG, B.S.

The following notes are prepared from the collecting experiences of Mr. Edw. D. Harris, Mr. William T. Davis and the writer, who have, separately or together, visited the pine barrens in each month from April to October. The point visited has usually been Lakehurst (formerly called Manchester), situated about seven miles south of Lakewood and in the midst of a typical pine barren country, where sand, stunted pines and dwarf oaks are repeated with little variation mile after mile; other excursions have been made to Jamesburg, which is rather on the edge of the pine barren than in its midst, and Brookville, which was selected for its propinquity to the East Plain, the most extremely barren portion of the pine barren. On the East Plain,

away from the streams, the tallest tree rises four feet above the ground and the usual elevation of the pines is about eighteen inches.

Throughout the Pine Barrens the conditions are suitable for Cicindelidæ: the roads are sandy, the trees are far apart and the soil in which they grow is nearly pure sand, and extreme dryness prevails everywhere except in the immediate vicinity of the streams and the white cedar swamps which often border them. On the East Plain, the sand is mixed with pebbles, not universally, but quite generally. The genus is represented by an extraordinary number of species and individuals of which the following is a list as far as they are known to me:

***Cicindela unipunctata* Fab.**

One specimen was taken by Mr. Harris at Lakewood, June 22, on a path running through the pine woods.

***Cicindela modesta* Dej.**

This variety is very abundant on sandy roads from the earliest warm days in the spring until about the end of June. In midsummer it cannot be found in numbers and we have no records of its capture between July 4 and August 29, although the locality was visited July 29. It occurs again in September in considerable numbers and some individuals probably hibernate and reappear in the spring.

It has been found at all the places visited and the exact dates of capture are April 10, April 15, May 24, June 4, July 4, August 29, September 2, September 22.

***Cicindela rugifrons* Dej.**

This species occurs with the preceding but less abundantly. The earliest date on which it is recorded is April 28, the latest date is October 21.

A comparison between the Pine Barren specimens of this species and those found at Aqueduct, Long Island, by Mr. Louis H. Jontel and Mr. Davis, shows some minor differences which might be expected to result from the long period of time during which there can have been no communication between these two branches of the species. The Long Island specimens, for example, vary in their markings much more than the New Jersey specimens and even immaculate individuals have been found. Apparently the influence of isolation can be traced in these differences.

Cicindela consentanea Dej.

This species occurs sparingly at Lakehurst and more abundantly at Brookville. At Lakehurst it is found in open spots in or at the edge of the woods and seems to prefer the blackened ground which it resembles in color. The exact dates on which it occurs are April 28, May 24, June 4, September 4, September 22. The burnt ground between the railroad track and the woods about a mile north of the station at Lakehurst is one locality where it may be found.

Cicindela purpurea Oliv.

This species occurs at Lakehurst from April 10 to May 24, in the less sandy soil east of the railroad, and again from September 3 to October 21. It has not been found in the pure sand roads west of Lakehurst and we have no record of taking it in June, July or August. It was found also at Brookville on September 22.

None of the varieties of this species has been found associated with it.

Cicindela generosa Dej.

This species occurs in numbers at the same dates and in the same localities as *modesta*.

Cicindela vulgaris Say.

This species occurs in the greatest abundance at the same dates and in the same localities as *modesta* and *generosa*. It has been found as late as October 21. The specimens are not as uniform in markings or size as those of the preceding species and there is an approach, especially in some specimens from the East Plain, to the small dark form that occurs in the Southern States.

Cicindela repanda Dej.

This species occurs on damp sand near the water, where the roads cross the streams, and in the cranberry bogs, and is locally abundant. We have found it in April, June, July, August, September and October and apparently the fact that the home of the larva is near the water, in moister ground, permits some individuals to complete their transformation earlier than is possible in the case of those species whose home is in the dryer sand. In Louisiana, Mr. Coverdale noticed the appearance of *Cicindelæ* after a copious rain in the fall; and I should think that the earlier reappearance of *repanda* was certainly due to a similar cause.

***Cicindela 12-guttata* Dej.**

This species has been found in small numbers at Lakehurst, always near water. The dates are April 15, April 20, July 29.

***Cicindela punctulata* Fab.**

This species occurs sparingly in midsummer, in sandy roads and fields. It appears when the preceding species are not to be found or only sparingly found. The exact dates we have are Lakewood, June 22; Lakehurst, July 12, July 29, September 1; Brookville, July 28; Jamesburg, July 4, August 29, September 1.

***Cicindela lepida* Dej.**

This species was found by Mr. William T. Davis in a sandy field near the cranberry bogs at Jamesburg on July 4 some years ago and he has since discovered other stations for it near Jamesburg, especially one on an island-like elevation of sand east of the South River and about midway between Jamesburg and Spotswood. It commences to appear in the latter part of June and is fairly abundant in colonies in July.

***Cicindela rufiventris* Dej.**

This species is not named in Professor John B. Smith's "Insects of New Jersey" and its occurrence within the state was unknown until its discovery by Mr. Davis on the east plain near Brookville on July 27. The first specimens were taken on the top of a hillock, about 150 feet above sea level; others were found later on sandy roads through the plain and on the sandy margin of a creek. They occurred in colonies and there were long stretches of road without any. Two days later a diligent search at Lakehurst failed to reveal a single specimen and there is little doubt that it is confined to the East Plain, the most barren part of the pine barrens.

It is interesting to note that the nearest known stations for this species or its varieties are in the eastern part of Massachusetts and in Virginia.

***Cicindela abdominalis* Fab.**

This also is a midsummer species. It has been found at Lakehurst, July 12, July 29 and September 1 and on the East Plain, at a comparatively low level, on July 27. At Lakehurst, it occurs on paths through the pine woods; it flies weakly and, when pursued,

seeks safety by running under some convenient cover instead of by flight.

These notes seem to indicate that, while some species are confined to midsummer, most of the Pine Barren *Cicindelæ* appear late in the summer and continue until fall, when they hibernate in the sand and reappear early in spring; Mr. H. W. Wenzel informs me that many species recorded at Lakehurst on April 10 and April 15 have been found at Da Costa on March 16 when there was still snow on one side of the railroad cut in which they were found. The indications that some individuals hibernate are indeed very strong; but it may well be that others do not complete their transformation until spring and then join their more expeditious brethren to make up the greater spring abundance of specimens.

CLASSIFICATION OF THE POINTED-TAILED WASPS, OR THE SUPERFAMILY PROC- TOTRYPIDÆ. — I.

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The writer, in his attempt towards a more natural classification of the Hymenoptera, in the Journal of the New York Entomological Society for March, 1899, separated these insects into *ten* superfamilies, namely: I, Apoidea; II, Sphecoidea; III, Vespoidea; IV, Formicoidea; V, Proctotrypoidea; VI, Cynipoidea; VII, Chalcidoidea; VIII, Ichneumonoidea; IX, Siricoidea, and X, Tenthredinoidea, which he considered were large natural groups, the sequence so arranged to show, as nearly as it were possible in a tabular arrangement, their affinities and relationship.

The new scheme of arrangement has been most favorably received notwithstanding its incompleteness, since only a few of these superfamilies have as yet been treated in toto and it is hardly possible yet, except in the vaguest way, for the student to appreciate the merits of the system in its entirety.

Of these ten superfamilies I have now classified down to genera, the Apoidea, the Sphecoidea, the Vespoidea, the Chalcidoidea,* the Ich-

* To be published shortly by the Carnegie Museum, Pittsburgh, Pa.